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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,322	06/13/2001	Walter H. Runkis		5476
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EXAMINER FISHER, ABIGAIL L				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/880,322

Applicant(s)

RUNKIS, WALTER H.

Examiner

ABIGAIL FISHER

Art Unit

1616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 104-117 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 104-117 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-C306)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Receipt of Amendments/Remarks filed on September 15 2010 is acknowledged. Claims 1-103 were/stand cancelled. Claims 108 and 116 were amended. Claims 104-117 are pending.

Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Maintained Rejection

Claims 111-117 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 111-117 introduce new matter. Claim 111 recites a product by process wherein the composition is made by mixing water and phosphoric acid, adding one or

more water-soluble bivalent metallic sulfamates and adding one or more salts of phosphoric or nitric acid. Claim 115 claims a product by process wherein salts of phosphor or nitric acid are added to a composition consisting essentially of phosphoric acid and one or more bivalent metallic sulfamate salts. The only recitation of phosphoric acid occurs in example 5. In this example it is indicated that stock solutions of phosphoric acid can be made as well as stock solution of the reaction batch (sulfamic acid and dolomite). However, order of addition as well as the additional addition of salts of nitrates and phosphates is not taught. Example 4 teaches mixing dolomite and sulfamic acid together first and then adding salts of nitrates. However, there is no mention of phosphoric acid. The limitation of the specific order of addition as well as the addition of salts of phosphoric acid or nitric acid or urea to a solution of bivalent metallic sulfamate salts and phosphoric acid was not described in the specification as filed, and person skilled in the art would not recognize in the applicant's disclosure a description of the invention as presently claimed. There is no guidance in the specification to select the specific order of addition claimed in the product by process steps and from MPEP 2163.06: "Applicant should therefore specifically point out the support for any amendments made to the disclosure." Applicant has not directed the Examiner to the support in the specification for the amendments. Therefore, it is the Examiner's position that the disclosure does not reasonably convey that the inventor had possession of the subject matter of the amendment at the time of filing of the instant application.

Response to Arguments

Applicants argue that example 5 of the present specification shows an 80 ml solution Ca/Mg sulfamate (from example 1) and 15% phosphoric acid 75% are added to 120 g of ammonium nitrate, 120 g of calcium nitrate, 80 g potassium, 50 g of magnesium nitrate and 110 g of monopotassium phosphate are added to water to form 1 liter solution. Therefore, it is argued that support for the claims are provided.

Applicants' arguments filed September 15 2010 have been fully considered but they are not persuasive.

The teachings of example 5 of the specification argued by applicant are not present in example 5 of the specification the examiner has on file. Example 5 teaches admixing 88.9 Kg of 95% pure dolomite and 184.4 Kg of sulfamic acid. This mixture was reacted and recovered as an aqueous solution and store in a 400 liter holding tank. The mixture contained 8.94 Kg of Ca, 11.48 Kg of MG, 60.96 Kg of S and 26.59 Kg of N. Individual concentrated stock solutions were prepared by dissolving commercially available preparations of (various are listed) including H_3PO_4 . It is taught that these stock solutions were later admixed in predetermined respective proportions to provide an infinite number of fertilizer compositions. This does not provide support for the instantly claimed process steps in the instantly claimed order. Since applicant is arguing the criticality of the order of addition, the specification needs to support this order of addition. While the examiner agrees that literal support does not need to be present, the specification must provide support for the concept. The concept of the

importance of the addition of bivalent metallic sulfamate salts to phosphoric acid is not taught in the examples.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Applicant Claims
2. Determining the scope and contents of the prior art.
3. Ascertaining the differences between the prior art and the claims at issue, and resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 104-117 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woodhouse (US Patent No. 2237826, cited in the Office action mailed on 6/25/03) in view of Kirk-Othmer (Encyclopedia of Chemical Technology, 1997, cited in the Office action mailed on 2/2/05) as evidenced by John Deere (Fundamentals of Machine Operation, 1976, cited in the Office action mailed on 6/25/03).

Applicant Claims

The instant application claims an acidic stock plant nutrient composition which consists essentially of an aqueous solution of one or more water-soluble bivalent metallic sulfamate salts and phosphoric acid.

Specific claimed micronutrient compounds is iron carbonate.

The instant application claims an acidic stock plant nutrient composition which is produced by a process which consists essentially of: a) mixing water and phosphoric acid; (b) adding one or more water-soluble bivalent metallic sulfamate salts which are produced by reacting sulfamic acid and one or more water-insoluble bivalent metallic macronutrient and/or micronutrient-containing compounds to the mixture a); and c) adding one or more salts of phosphoric or nitric acid or both to the mixture of a) and b).

Determination of the Scope and Content of the Prior Art (MPEP §2141.01)

Woodhouse is directed to fertilizer compositions. It is taught that phosphate rock may be decomposed by various mineral acids to give valuable fertilizer materials generally referred to as superphosphates. It is taught that it is known in the art to add various nitrogen-containing materials to such superphosphates in processes of preparing complete or finished fertilizers (column 1, lines 4-10). It is taught that highly desirable nitrifying solutions may be prepared by the use of sulfamic acid or salts of sulfamic acids as one component. Salts of sulfamic acid include ammonium, sodium, calcium, magnesium, potassium or the like salts or mixtures thereof (column 2, lines 10-21). Sulfamic acid is taught as a good source of nitrogen for plant growth and miscible

with water (column 2, lines 22-29). It is taught that the invention may be practiced by addition of sulfamic acid or its salts to the usual fertilizer materials such as superphosphate, double and triple phosphate, potash salts, organic materials, etc. (column 2, lines 35-40). Potash salts include potassium sulfate, chloride and nitrate; ammonium salts such as ammonium chloride, nitrate, sulfate carbamate, etc. (column 3, lines 1-7). It is taught that sulfamic acid may be advantageously incorporated into nitrogen containing or ammoniating liquids generally. For example, sulfamic acid may be in ammoniating solutions or nitrogen-containing solutions which have incorporated therein a wide variety of nitrogenous compounds including nitrates, ammonium salts and organic nitrogenous materials such as urea (column 3, lines 45-59). Example 1 utilizes superphosphate (17% P_2O_5) and ammonium sulfamate. As claimed the fertilizer comprises sulfamic acid and salts of sulfamic acid and a water soluble nitrogen salt having fertilizing value selected from the group consisting of alkali metal, alkaline earth metal and ammonium salts (claim 2). This fertilizer also contains water (claim 3). The water soluble salt having fertilizing value is taught as salts such as ammonium nitrate, sodium nitrate, calcium nitrate, potassium nitrate, potassium chloride or the like (column 4, lines 43-48). The method of producing the fertilizer as claimed comprises adding to acidic fertilizer materials a liquid containing a material selected from the group consisting of sulfamic acid and salts of sulfamic acid (claim 5) or a liquid containing a water soluble salt having fertilizing value and a material selected from the group consisting of sulfamic acid and salts of sulfamic acid (claim 8). It is taught that although the examples are restricted to the use of ammonium sulfamate, the use of this salt is

only illustrative as indicated elsewhere sulfamic acid or other salts of sulfamic acid may be substituted for and utilized equally as well as the ammonium sulfamate of the examples (column 5, lines 21-29). The amount of water that can be utilized to form the fertilizing solution is at least 5 parts of water.

**Ascertainment of the Difference Between Scope of the Prior Art and the Claims
(MPEP §2141.012)**

While Woodhouse teach the formation of sulfamic acids salts such as ammonium, sodium, calcium, and magnesium, Woodhouse does not teach iron salts of sulfamic acids formed by the reaction of sulfamic acid with iron carbonate. However, this deficiency is cured by Kirk-Othmer.

Kirk-Othmer is directed to sulfamic acids and sulfamates. It is taught that sulfamic acid readily forms various metal sulfamates by reaction with the metal or the respective carbonates, oxides or hydroxides. Examples of metal salts include zinc, calcium, iron, nickel and ammonium salts (page 122).

As evidenced by John Deere, in the fertilizer trade, the phosphorus content of fertilizers is expressed in terms of phosphoric acid (P_2O_5) (page 21, right column, second paragraph).

***Finding of Prima Facie Obviousness Rationale and Motivation*
(MPEP §2142-2143)**

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to combine the teachings of Woodhouse and Kirk-Othmer and utilize a

sulfamic acid salt in combination with a superphosphate, nitrate containing compounds such as calcium nitrate or ammonium nitrate and urea. One of ordinary skill in the art would have been motivated to utilize these compounds as Woodhouse teach that sulfamic acid salts may be combined with other materials in preparing a fertilizer. These other ingredients include nitrogen containing liquors such as nitrates and superphosphates. As a general principle it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose, the idea of combining them flows logically from their having been individually taught in the prior art. See *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) **MPEP 2144.06.**

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to combine the teachings of Woodhouse and Kirk-Othmer and utilize various different sulfamic acid salts including iron sulfates. One of ordinary skill in the art would have been motivated to utilize various different sulfamic acid salts as Woodhouse teach that salts of sulfamic acid can be utilized and indicate such bivalent salts such as calcium and magnesium can be utilized. One of ordinary skill in the art would have been motivated to replace the taught ammonium or calcium salts with iron as all are taught by Kirk-Othmer as functional equivalents. It would have been obvious to one of ordinary skill in the art to utilize carbonates, oxides or hydroxides of the various metals to form the salts as Kirk-Othmer teach that this how the formation of salts of sulfamic acid are typically formed.

Regarding claim 105, specific nitrates taught as being inclusive of the fertilizer compositions include calcium nitrate. This particular species with both a nitrate (which is also a N^{-3} moieties) and a calcium moiety.

Regarding the claimed acidity, as claimed by Woodhouse, the salt of the sulfamic as well as the water soluble salts having fertilizing value are added to an acidic base. Since the sulfamic acid salt would be expected to be acidic and the nitrates would be expected to at least be neutral (see the submitted MSDS sheets for ammonium sulfamate and sodium nitrate, cited in the Office action mailed on 12/9/09) the overall pH of the composition would be expected to be acidic.

Regarding the claimed phosphoric acid, Woodhouse exemplify adding salts of sulfamic acid to superphosphate. The superphosphate is taught as being 17% P_2O_5 , which is how fertilizers express phosphoric acid. Therefore, the addition of the salts of sulfamic acid would result in a composition comprising salts of sulfamic acid and phosphoric acid.

Regarding claims 111-117, **Note MPEP 2113 [R-1]:** “[E]ven though product-by-process claims are limited by and defined by the process; determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The MPEP also indicates that “the structure implied by the process steps should be considered when assessing the patentability of product-by-

process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garner*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979). As claimed by Woodhouse, the salts of sulfamic acid are added to acidic fertilizer material. Furthermore, **Note: MPEP 2144.04 [R-1]** Changes in Sequence of Adding Ingredients: Ex parte Rubin, 128 USPQ 440 (Bd. App. 1959) (Prior art reference disclosing a process of making a laminated sheet wherein a base sheet is first coated with a metallic film and thereafter impregnated with a thermosetting material was held to render *prima facie* obvious claims directed to a process of making a laminated sheet by reversing the order of the prior art process steps.). See also *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) (selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results); *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930) (Selection of any order of mixing ingredients is *prima facie* obvious.). Therefore, since Woodhouse teach the addition of all claimed ingredients in a fertilizer composition, the order of addition is *prima facie* obvious in the absence of new or unexpected results.

Absent any evidence to the contrary, and based upon the teachings of the prior art, there would have been a reasonable expectation of success in practicing the instantly claimed invention. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Response to Arguments

Applicant argues that (1) Woodhouse neither discloses nor suggest the addition of any salts of phosphoric acid or nitric acid must be added to salts of sulfamic acid under acidic conditions, let alone in the presence of phosphoric acid. Applicant argues that (2) Woodhouse does not even mention the use of acidic conditions. It is argued that the compositions of Woodhouse are basic. Applicant argues that (3) Woodhouse neither discloses nor suggests avoiding precipitation in order to obtain water-solution compositions.

Applicants' arguments filed September 15 2010 have been fully considered but they are not persuasive.

Regarding applicant's first and second arguments, firstly, the instant specification additionally does not disclose or suggest that the addition of any salts of phosphoric acid or nitric must be added to the salts of sulfamic acid under acidic conditions. While Woodhouse does not utilize the term acidic conditions, Woodhouse does claim that the salts of sulfamic acid are added to an acidic fertilizer. While applicant continues to contend that the compositions of Woodhouse are basic, applicant has provided no data to support this notion. **The examiner maintains that while ammonium sulfamate is exemplified, Woodhouse makes it clear that other salts of sulfamic acid are contemplated including other bivalents salts of sulfamic acid.** Applicant is reminded that the rejection is made under 103 and does not need to exemplify all embodiments, only suggest. "Disclosed examples and preferred embodiments do not constitute a teaching away from the broader disclosure or non-preferred embodiment."

In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). Woodhouse teach adding in combination salts of sulfamic acid and an acidic fertilizer. An acidic fertilizer exemplified is superphosphate which possess 17% phosphoric acid (P_2O_5). Furthermore, Woodhouse clearly teaches the addition of nitrate salts and urea to the fertilizer compositions. If applicant contends that the order of addition results in a product that is distinct from that taught in Woodhouse, then applicant must show a side-by-side comparison of the two products and the corresponding taught method steps and show the difference as the MPEP makes it clear that selection of any order of mixing ingredients is *prima facie* obvious and if the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. Applicant keeps arguing that Woodhouse is only focused on ammonium because that is exemplified. However, the examiner disagrees as Woodhouse clearly teaches other sulfamate salts. Applicant has not demonstrated the unobviousness of the instantly claimed sulfamate salts over those taught in Woodhouse. Applicant argues that Woodhouse only teaches ammonium sulfamate not bivalent metallic sulfamates. This is unpersuasive and will continue to be unpersuasive as salts specifically taught by Woodhouse are ammonium, sodium calcium, magnesium, potassium or the like. Therefore bivalent salts of sulfamate are taught and contemplated by Woodhouse. While ammonium may be the only one exemplified Woodhouse expressly states that "although the examples are restricted to the use of ammonium sulfamate, the use of this salt of sulfamic acid is only illustrative of a mode of operation according to this invention. As has been previously pointed out,

sulfamic acid or other salts of sulfamic acid may be substituted for and utilized equally as well as the ammonium sulfamate of the examples" (page 3, left column, lines 20-29). Therefore, Woodhouse does not confine the teachings to only ammonium sulfamate.

Regarding applicant's third argument, Woodhouse teaches the use of bivalent sulfamate salts (calcium and magnesium) which are the instantly claimed water soluble sulfamate salts. Furthermore, the nitrates taught by Woodhouse include calcium nitrate which is one of the nitrate species taught in the instant specification. While Woodhouse does not explicitly teach avoiding precipitation, Woodhouse teach the addition of the same claimed "solution stable " components (i.e. Ca and N species).

Applicant continues to argue only the exemplified embodiments of Woodhouse, but the examiner reiterates, the rejection is under 103 and does not need to exemplify all embodiments only suggest. Woodhouse expressly teaches that the exemplified ammonium sulfamate can be replaced with the other salts taught such as magnesium and calcium. Clearly, the presence of ammonia is not a necessity. Therefore, the claims are deemed unpatentable over Woodhouse and Kirk-Othmer as applicant has not presented any persuasive arguments or data which established the unobviousness or unexpectedness of the instantly claimed bivalent sulfamates.

Conclusion

No claims are allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABIGAIL FISHER whose telephone number is (571)270-3502. The examiner can normally be reached on M-Th 9am-6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Abigail Fisher
Examiner
Art Unit 1616

AF

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